INSTRUCTIONS

-J04992 REV. 2009-07-07

SCREAMIN' EAGLE PRO 11:1 COMPRESSION, 3.875 INCH BORE PISTONS

GENERAL

NOTES

Always check piston-to-valve clearance when using non-stock camshafts.

All dimensions listed on these instructions are in inches.

High compression piston applications require installation of appropriate compression release in cylinder heads.

The pistons in this kit have an Electroless Nickel plating in the piston pin bores and require the use of a non-plated piston pin only (22304-08).

Kit Numbers

21916-08A, 21928-08A

Table 1. Kits

Kit	Application
21928-08A	Standard, 3.875 in. (front & rear)
21916-08A	+0.010 (front & rear)

Models

These kits fit Harley-Davidson Twin Cam models equipped with the following items:

- Cylinder heads: Screamin' Eagle Pro MVA, 110+ or ACR Performance cylinder heads.
- Cylinders: Screamin' Eagle Pro 3-7/8" Big Bore cylinders.
- Flywheels: Screamin' Eagle Pro 4-3/8" stroke flywheels or '07-later original equipment 4-3/8" stroke flywheel assembly.

NOTE

This engine-related performance part is intended for high-performance or racing applications and is not legal for sale or use on pollution-controlled motor vehicles. This kit may reduce or void the limited vehicle warranty. Engine-related performance parts are intended for the experienced rider only.

Additional Parts Required

CAUTION

You must recalibrate the ECM when installing this kit. Failure to properly recalibrate the ECM can result in severe engine damage. (00399b)

NOTE

ECM recalibration is required, which can be performed with the Screamin' Eagle Race Tuner Kit (Part Number 32107-01F). See a Harley-Davidson dealer.

Re-jetting and/ or re-timing of the engine may be required to realize the full potential of this performance product.

WARNING

The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)

NOTE

This instruction sheet references Service Manual information. A Service Manual for your model motorcycle is required for this installation and is available from a Harley-Davidson Dealer.

Kit Contents

See Table 4, and Figure 3.

INSTALLATION

WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative (-) cable first) before proceeding. (00307a)

WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

1. Refer to the Service Manual and follow the instructions given to remove the seat and disconnect the battery cables, **negative cable first**.

WARNING

When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)

2. Refer to the ENGINE: STRIPPING MOTORCYCLE FOR SERVICE and TOP END OVERHAUL, DISASSEMBLY

sections of the Service Manual for cylinder head, cylinder and piston removal procedures.

3. Follow the procedures in the ENGINE: SUBASSEMBLY SERVICE AND REPAIR, TOP END/ CYLINDER/ UPPER CONNECTING ROD sections of the Service Manual for inspection of parts.

4. See the ENGINE: SUBASSEMBLY SERVICE AND REPAIR, CYLINDER section of the Service Manual for boring and honing instructions.

NOTES

Install the top ring (barrel-faced) and second ring (taper-faced Napier) with the "N" marking facing up. Oil ring rails can be installed either side up.

The 4.060 inch cylinder base gaskets and cylinder head gaskets included in the kit eliminate the need for O-rings (11273). ***Do not*** *use O-rings on cylinder dowels or cylinder spigots.*

When installing new base gasket, install with the embossed side down and the concave side up.

Piston dimensions to be measured 0.281 inches above the lowest part of the skirt.

5. The pistons in this kit are front and rear specific. Install the piston marked "FRONT" in the front cylinder with the arrow pointing towards the front of the engine. Install the piston marked "REAR" in the rear cylinder with the arrow pointing towards the front of the engine.

6. Refer to the ENGINE: TOP END OVERHAUL, ASSEMBLY section of the Service Manual for piston, cylinder and cylinder head installation procedures.

Table 2. Specifications

Piston:	Clearance (in.)
Fit in cylinder (Loose)	0.0015-0.0025
Piston pin fit (Loose)	0.0003-0.0008
Top Ring End Gap Second Ring End Gap Oil Control Ring Rail Gap	0.012-0.020 0.016-0.024 0.007-0.030
Top Ring Side Clearance Second Ring Side Clearance Oil Control Ring Side Clearance	0.0015-0.0029 0.0015-0.0029 0.0010-0.0072

Table 3. Service Wear Limits

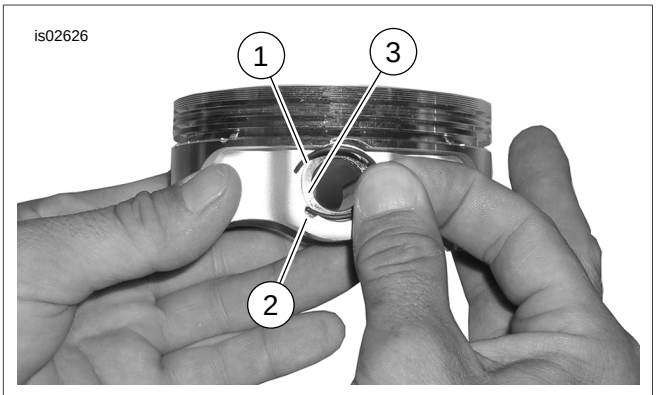
Fit in Cylinder (Loose)	Wear Limit (in.)
Fit in cylinder (Loose)	0.005
Piston Pin Fit (Loose)	0.0011
Top Ring End Gap Second Ring End Gap Oil Control Ring Rail Gap	0.030 0.034 0.040
Top Ring Side Clearance Second Ring Side Clearance Oil Control Ring Side Clearance	0.0037 0.0037 0.0081

Piston Pin Retaining Ring (Circlip) Installation

NOTE

Circlip gap must be at 12:00 or 6:00 position when installed.

7. See Figure 1. Insert the open end of the circlip (1) into the notch (3) on the groove (2) around the piston pin boss so that the gap is at the 12:00 or 6:00 position when installed.



1. **Circlip**
2. **Notch**
3. **Groove**

Figure 1. Circlip and Piston

1. **Thumb orientation**
2. **Circlip 85% seated**

Figure 2. Install Circlip

8. See Figure 2. Position your thumb (1) as shown, and press firmly until approximately 85% of the circlip (2) is seated in the groove.

9. Being careful not to scratch or mar the piston, use a small-bladed screwdriver to wedge the circlip into the remainder of the groove. Repeat for the remaining circlips.

NOTE

Make sure the piston circlip is fully seated, or ENGINE DAMAGE WILL OCCUR.

10. Refer to the ENGINE: ASSEMBLING MOTORCYCLE AFTER STRIPPING section of the Service Manual for final re-assembly procedures.

NOTES

Always follow the break-in procedure outlined in the appropriate Owner's Manual after rebuilding an engine.

SERVICE PARTS

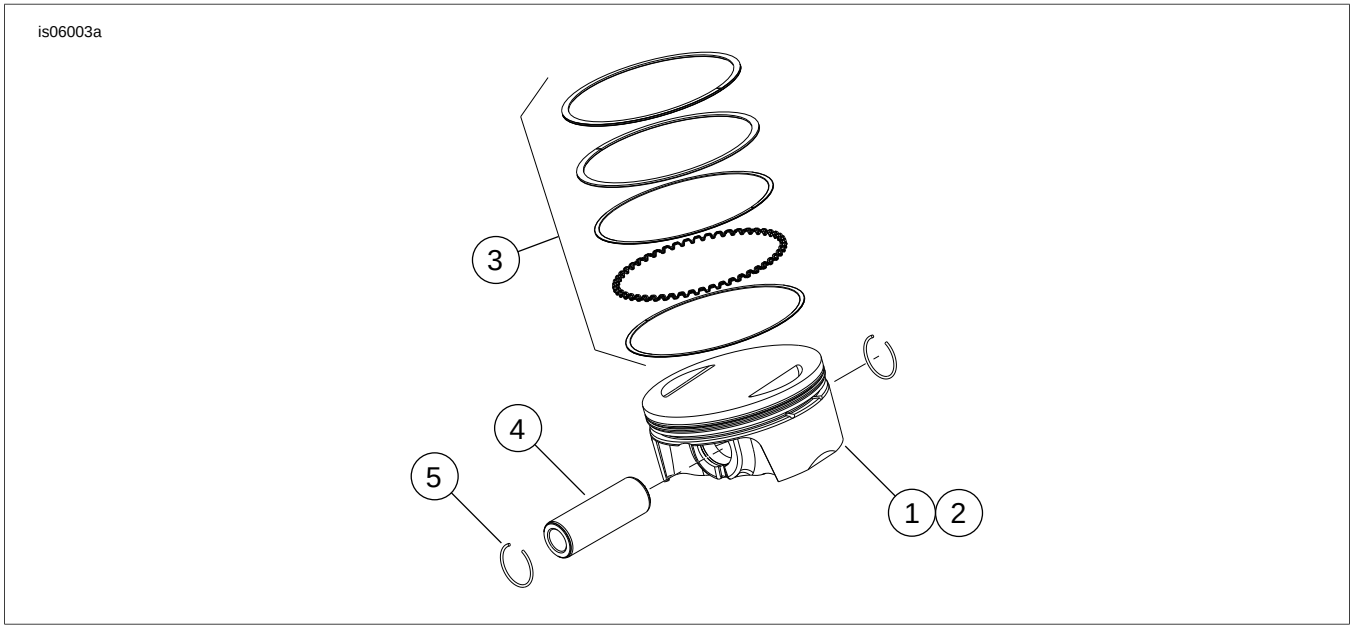


Figure 3. Service Parts: Screamin' Eagle Pro 11:1 Compression, 3.875 Inch Bore Pistons

Table 4. Service Parts Table: Front and Rear Piston Kits

Kit	Item	Description (Quantity)	Part Number
Kit 21928-08A Piston Kit (Standard)	1	Piston (front, standard)	Not sold separately
	2	Piston (rear, standard)	Not sold separately
	3	• Ring set, standard (2)	22457-10
	4	• Piston pin (2)	22304-08
	5	• Circlip (4)	22097-99
Kit 21916-08A Piston Kit (+0.010)	1	Piston (front, +0.010)	Not sold separately
	2	Piston (rear, +0.010)	Not sold separately
	3	• Ring set, +0.010 (2)	22459-10
	4	• Piston pin (2)	22304-08
	5	• Circlip (4)	22097-99